DUAL J-FET INPUT OPERATIONAL AMPLIFIER

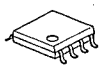
■ GENERAL DESCRIPTION

The NJM072B/082B & NJM072/082 are dual JFET input operational amplifiers. They feature low input bias and offset currents, high input impedance and fast slew rate. The low harmonic distortion and low noise make them ideally suit for amplifiers with high fidelity and audio amplifier applications.

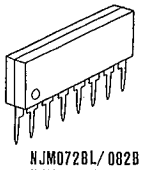
The NJM072/082 may cause oscillation in some application like voltage follower.

■ PACKAGE OUTLINE

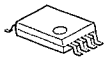
NJM072BD/082BD
NJM072D/082D



NJM072BM/082BM
NJM072M/082M



NJM072BL/082BL
NJM072L/082L

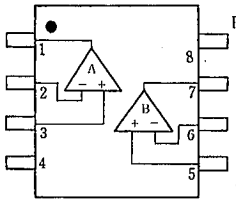


NJM072BV/082BV

■ FEATURES

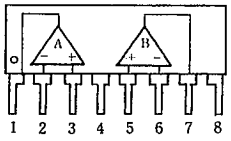
- Operating Voltage (±4V~±18V)
- J-FET Input
- High Input Resistarce ($10^{12}\Omega$ typ.)
- Low Input Resistance (30pA typ.)
- High Slew Rate (13V/μs, 20V/μs typ.)
- Wide Unity Gain Bandwidth (3MHz, 5MHz typ.)
- Package Outline DIP8, DMP8, SSOP8, SIP8
- Bipolar Technology

■ PIN CONFIGURATION



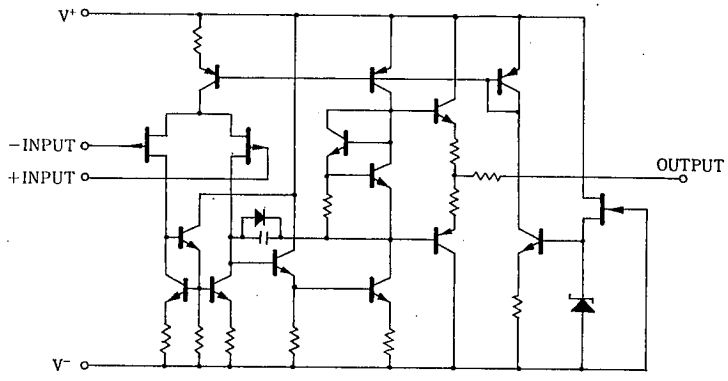
PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

NJM072BD/082BD
NJM072D/082D
NJM072M/082M
NJM072BM/082BM
NJM072BV/082BV



NJM072L/082L
NJM072BL/082BL

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	±18	V
Input Voltage	V_{IC}	±15	V
Differential Input Voltage	V_{ID}	±30	V
Power Dissipation	P_D	(DIP8) 500	mW
		(DMP8) 300	mW
		(SSOP8) 300	mW
		(SIP8) 800	mW
Operating Temperature Range	T_{opr}	−40～+85	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS (Ta=+25℃, V^+/V^-=±15V)

( ) Applies to NJM082B, NJM082

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	R_S=50Ω	—	3(5)	10(15)	mV
Input Offset Current	I_{IO}		—	5	50(200)	pA
Input Bias Current	I_B		—	30	200(400)	pA
Input Common Mode Voltage Range	V_{ICM}		±10	—	—	V
Maximum Peak-to-peak Output Voltage Swing	V_{OPP}	R_L=10kΩ	24	27	—	V_{p-p}
Large-Signal Voltage Gain	A_V	R_L≧2kΩ, V_O=±10V	88	106	—	dB
Unity Gain Bandwidth	f_T	072B/082B	—	3	—	MHz
		072/082	—	5	—	MHz
Input Resistance	R_{IN}		—	10^{12}	—	Ω
Common Mode Rejection Ratio	CMR	R_S≦10kΩ	70	76	—	dB
Supply Voltage Rejection Ratio	SVR	R_S≦10kΩ	70	76	—	dB
Operating Current	I_{CC}		—	3	5(5.6)	mA
Slew Rate	SR	072B/082B	—	13	—	V/μs
		072/082	—	20	—	V/μs
Equivalent Input Noise Voltage	V_{NI}	R_S=100Ω, B.W.=10～10kHz	—	4	—	μVrms

■ NOTICE WHEN APPLLCATION

Recommendable product

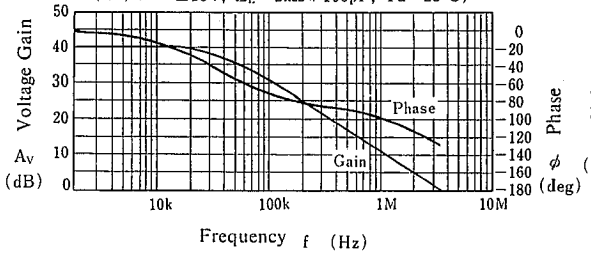
072/082 are the products in which the AC feature have been made much higher camparing to the products of 072B/082B which are compatible with 072/082 type of other company's products. Therefore, 072/082 are unstable in oscillation when the voltage follower application, and it is recommendable to use the standard type 072B/082B when newly designed. Beside these products, we have NJM2082 which is higher up in AC feature, yet stability in oscillation, and then the driving capacity to the load at the output stage is made much higher in operation.

■ TYPICAL CHARACTERISTICS

NJM072B/082B

Voltage Gain, Phase Shift vs. Frequency

($V^+/V^-=\pm15V$, $Z_L=2k\Omega$ // 100pF, Ta=25°C)



NJM072/082

Voltage Gain, Phase Shift vs. Frequency

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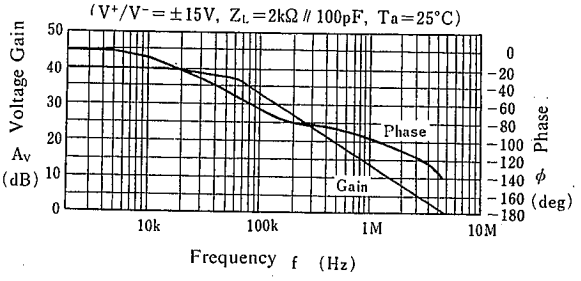
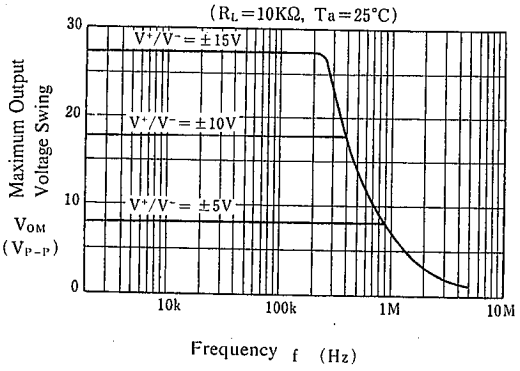


NJM072B/082B

Maximum Output Voltage Swing vs. Frequency

($R_L=10K\Omega$, Ta=25°C)



NJM072/082

Maximum Output Voltage Swing vs. Frequency

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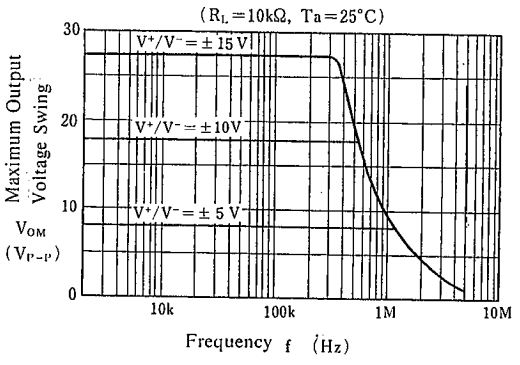
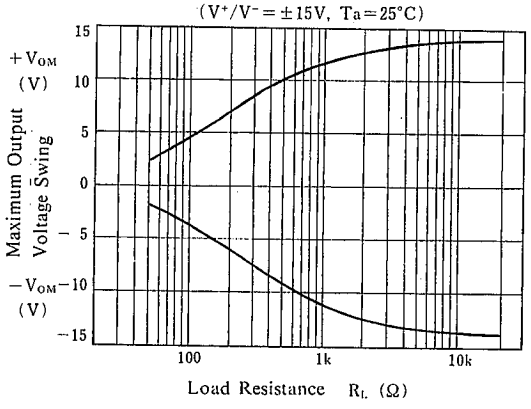


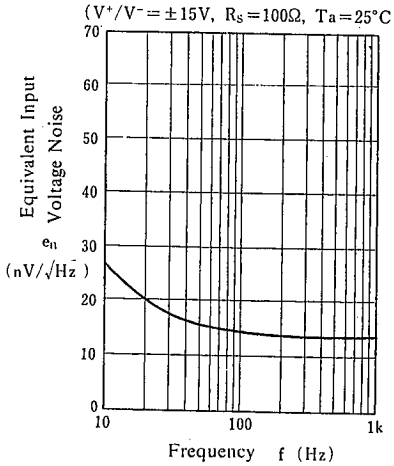
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, Ta=25°C)



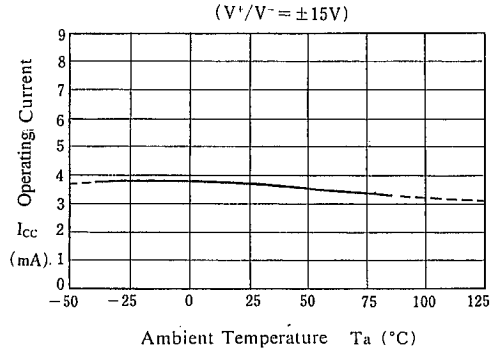
Equivalent Input Voltage Noise vs. Frequency

($V^+/V^-=\pm15V$, $R_S=100\Omega$, Ta=25°C)

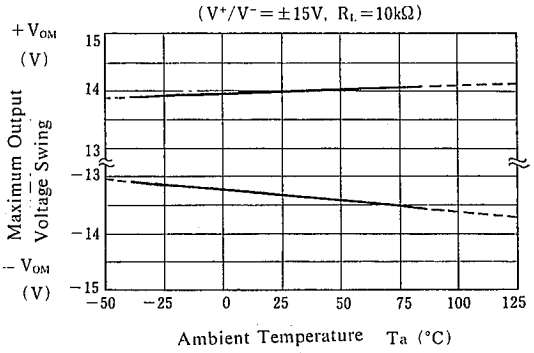


■ TYPICAL CHARACTERISTICS

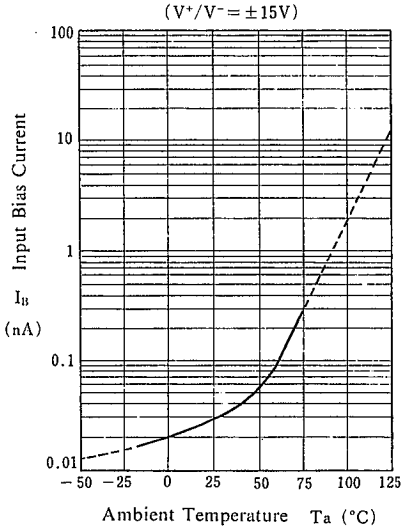
Operating Current vs. Temperature



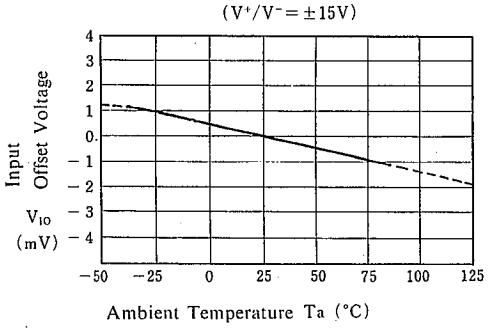
Maximum Output Voltage Swing vs. Temperature



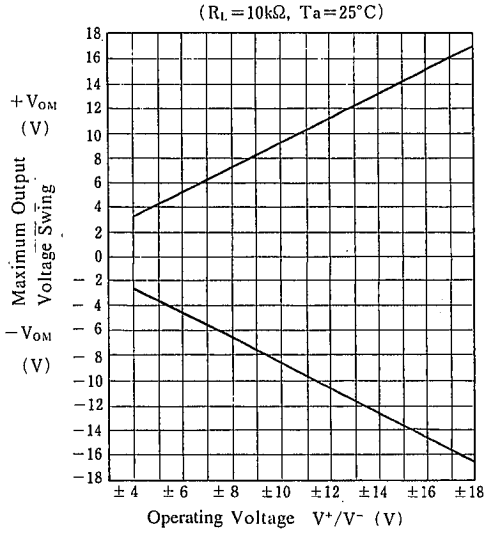
Input Bias Current vs. Temperature



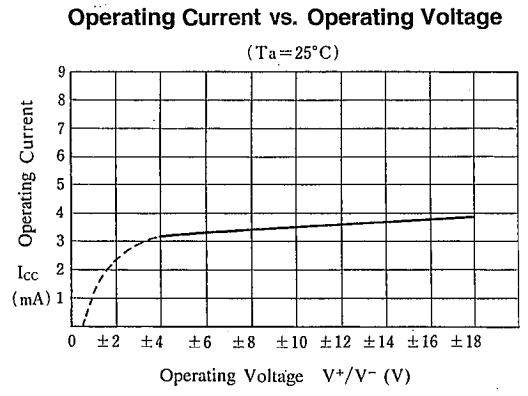
Input Offset Voltage vs. Temperature



Maximum Output Voltage Swing vs. Operating Voltage



Operating Current vs. Operating Voltage



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